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EXAMINER

NGUYEN, LEE

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 06/17/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary

Application No.

09/837,476

Applicant(s)

PRISMANTAS ET AL.

Examiner

LEE NGUYEN

Art Unit

2682



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to the communication filed 10/16/2002.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 6-7, 11-12, 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Blair et al. (US 2002/0173271 A1).

Regarding claim 1, Blair teaches an RF data transfer system comprising: means for detecting (signal strength or other parameters, col. 4, paragraph [0042]) and characterizing RF interference (non-DSSS

interference or MMDS narrow band, col. 1, paragraph [0010] and col. 4, paragraph [0042] and DSSS interference or wide band ISM band , col. 5, paragraph [0043] and col. 1, paragraph [0011]) with said data transfer; and means for adjusting the RF transmission to avoid said interference (parameters, col. 5, paragraph [0046]).

Regarding claims 4, 11-12, Blair also teaches changing modulation rate (col. 5, paragraph 0046).

Regarding claim 6, Blair also teaches means for analyzing (see paragraph 0047).

Regarding claim 7, Blair teaches a method of reducing RF interference for unlicensed band transmission (ISM band, paragraph 0002), comprising the steps of: calculating characteristics of RF interference within a band of interest of an unlicensed band to arrive at an interference profile (paragraphs 0043 through paragraph 0044); and adjusting desired RF transmissions to accommodate said interference profile (paragraphs 0045 – 0048).

Regarding claim 15, Blair also teaches changing frequency (paragraph 0048).

Regarding claim 16, Blair also teaches changing channel width (paragraph 0047).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair et al. in view of Poyhonen (WO 93/22850).

Regarding claim 2, Blair fails to teach shifting a sequence of time slots. Poyhonen reduces interference in an RF communication system by shifting a sequence of time slots (time slot hopping, col. 12, lines 10-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Poyhonen to the communication system of Blair in order to maximize interference diversity.

7. Claims 3, 9, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blair et al. in view of Petranovich et al. (US 5,946,624).

Regarding claims 3, 9, 18, Blair fails to teach skipping or eliminating at least one time period in a sequence of time period. Petranovich teaches that in order to reduce interference, skipping at least one time period in a sequence of time period (fig. 6, see T'1 of cell A). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Petranovich to the communication system of Blair in order to reduce interference.

8. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Hiramatsu et al. (US 6,463,261).

Regarding claims 5 and 8, Blair fails to teach using an addition antenna for detecting interference. Hiramatsu teaches using an addition antenna 1 of an apparatus (fig. 2) for detecting interference from an undesired source in order to provide an offset timing communication between a desired source and the apparatus (col. 3, line 64 through col. 4, line 59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hiramatsu to the communication system of Blair in order to eliminate interference in the system.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Smith et al. (US 6,366,573).

Regarding claim 10, Blair fails to teach reducing in time one of the slot during interference. Smith teaches reducing in time one of the slot during interference (col. 5, lines 57-59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the

teaching of Smith to the communication system of Blair in order to save processing time.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Lundby et al. (US 6,356,528).

Regarding claim 13, Blair fails to teach different antenna for transmission. Lundby teaches using different antennas 4, 6 for transmission (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lundby to the communication system of Blair in order to enhance the reliability of communications.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Chen et al. (US 6,215,777).

Regarding claim 14, Blair fails to teach different hub for transmission. Chen teaches using different hubs for transmission (col. 10, lines 15-56). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to provide the teaching of Chen to the communication system of Blair in order to increase available data rate.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Lund (US 5,844,934).

Regarding claim 2, Blair fails to teach changing channel polarity. Lund reduces interference in an RF communication system by changing channel polarity (col. 22, lines 10-26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lund to the communication system of Blair in order to minimize interference.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Allen (US 6,256,478).

Regarding claim 19, Blair teaches reducing RF interference, comprising the steps of: monitoring an unlicensed RF band for extraneous RF signals (paragraph 0043, col. 5); breaking into interference types and

determining characteristics of the interference (col. 1, paragraph [0010] and col. 4, paragraph [0042] and col. 5, paragraph [0043] and col. 1, paragraph [0011]); and selecting at least one action to reduce interference in which said action is changing the code rate (paragraph 0046). The characteristics of Blair comprising narrow band and wide band RF interference (non-DSSS interference or MMDS narrow band, col. 1, paragraph [0010] and col. 4, paragraph [0042] and DSSS interference or wide band ISM band , col. 5, paragraph [0043] and col. 1, paragraph [0011]). Blair does not teach the intended use of characteristics of periodic wide band interference. In an analogous art, Allen teaches detecting periodic wide band interference (ISM band, col. 1, line 34, abstract) for the purpose of improving digital communication in environments with periodic noise. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Allen to the system of Blair in order to improve digital communication in environments with periodic noise.

14. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blair in view of Allen (US 6,256,478) as applied to claim 19 above and further in view of Hiramatsu et al. (US 6,463,261).

Regarding claim 20, the claim is interpreted and rejected for the same reason as set forth in claims 5 and 8 above.

Response to Arguments

15. Applicant's arguments filed 3/26/2003 have been fully considered but they are not persuasive.

The argument concerning the rejection of independent claim 19 and dependent claim 20 is moot in view of new ground rejection.

Regarding the rejection of claim 1, Applicant contends that Blair does not teach "characterizing RF interference" because Blair can be at best be said to "characterize RF interference", (emphasis added) only as DSSS or non-DSSS, and Blair does not attempt to characterize interference according to further parameters **such as** "periodically, directionality or bandwidth", (emphasis added).

In response, as admitted by Applicant, Blair characterizes RF interference as non-DSSS (narrow band) and DSSS (wide band). So the question is

that whether the test for an “equivalent” meets the requirement of the 35 U.S.C 112, sixth paragraph from the limitation of independent claim1. The specification of the present application characterizes interferences parameters **such as** narrow band (box 204-1), periodic or intermittent narrow band (box 204-2), wideband (box 204-3), and periodic or intermittent wide band (box 204-4), all in figure 2. In Blair, the non-DSSS (narrow band) and DSSS (wide band) characterization performs the same function as specified in the claim and produces the same results as the corresponding NARROW BAND (box 204-1) and WIDE BAND (box 204-3) disclosed in the specification. Therefore, the examiner believes that the limitation of NARROW BAND (box 204-1) and WIDE BAND (box 204-3) was intentionally ignored in the remarks, while Blair does teach the claimed limitation and meets the requirement under of the 35 U.S.C 112, sixth paragraph.

With the same approach, Applicant further argues that Blair fails to disclose adjusting the RF transmission to avoid said interference as described in the specification that **might include** (emphasis added), not only a frequency change, but also other independently implemented adjustments to the RF transmissions which **include, but are not limited to**

(emphasis added), time slot adjustments and/or deletions, adaptive modulation, a change in data channel width, a change in data code rate, a change in signal/antenna polarity, and/or use of a separate antenna and/or hub.

In response, the examiner respectfully disagrees. Blair does teach adjusting the RF transmission to avoid the interference. As admitted by Applicant, Blair discloses channel constrain by selected data rate and/or modulation scheme (paragraph [0031], table 1, and paragraphs [0046, 0047]). Whether or it is comprehensive, Blair does anticipate the claimed limitation and meets the requirement under of the 35 U.S.C 112, sixth paragraph.

Regarding the rejection of independent claim 7, Applicant contends that Blair fails to teach “calculating characteristics of RF interference” because a quality of service (QOS) threshold is used to determine if DSSS interference makes use of a channel undesirable.

In response, in Blair, at step 425 of figure 4, the RF energy of the incoming signal is detected and computed with respect to a threshold [0043]. Therefore, Blair does teach the calculation.

Applicant further contends that Blair does not teach the claimed “to arrive at an interference profile” to “adjusting desired RF transmissions to accommodate said interference profile”.

In response, if Blair does not teach arriving at interference profile, there is no need to implement the channel information table CIT 330 (fig. 4, paragraphs [0042-0043]). The step of adjusting has been addressed above regarding the rejection of independent claim 1.

Applicant further argues that Blair does not teach changing modulation rate, modifying a modulation scheme, changing code rate, or changing channel width.

In response, the examiner respectfully disagrees. Blair does change the modulation rate, modifying a modulation scheme, changing code rate, or changing channel width [0046-0047] according to the RF interference from the channels [0046]. Therefore, Blair does anticipate claims 4, 11, 12 and 16.

Applicant further argues that Blair does not teach in claim 6 “means for analyzing the RF data transfer for characteristics of interference”.

In response, does Blair analyze the RF data transfer for characteristics of interference? The answer is yes. In fact, this limitation is taught by Blair in paragraph [0047] in which data transfer is analyzed.

Regarding the rejection of dependent claim 2, Applicant argues that Blair as modified by Poyhonen fails to teach means for shifting a sequence of RF time slots to avoid interference.

In response, Blair as modified by Poyhonen teaches shifting a sequence of time slots by using time slot hopping (col. 5, lines 30-35 and col. 12, lines 10-20 of Poyhonen). Therefore, Blair as modified does teach the claimed limitation.

Applicant further raises the question that how one striving to mitigate interference present in an unlicensed band, particular outside interference, would be motivated to look to the art directed to scheduling "time slot hopping" in a licensed RF environment.

In response, first, Applicant should refer to his own invention, it also adapts varieties of differently well-known techniques used to mitigate interference and intend to use for his own invention, which alters between TDMA and FDM. Second, Blair also suggests the using of spread spectrum [0025], which is analogous or at least, compatible with the technique used

in frequency/time hopping of Poyhonen. Therefore, one having skilled in the art would find no problem when the system of Blair is implemented under frequency/time hopping. Consequently, providing the teaching of Poyhonen to the system of Blair would maximize interference diversity. Finally, it is not fair for one to use conventional techniques of preventing interference, while preventing other performing the same.

Regarding the rejection of claims 3, 9, 18, Applicant contends that Petranovich does not teach the claimed skipping, eliminating or adjusting.

As stated in the rejection, Petranovich does teach the claimed skipping, eliminating or adjusting in response to interference (see figure 6, T' of cell A). Furthermore, not only Petranovich teaches frequency reuse, but also reduces co-channel interference (col. 2, lines 1-22).

Applicant further attempts the same approach that applies to the combination of Blair and Poyhonen above. For this same reason, this analogous argument is responded for the same reason as set forth above.

Regarding the rejection of claim 5, Applicant argues that Hiramatsu does not teach the claimed separate antenna.

The examiner contends that limitation is taught by Hiramatsu in figure 2, numerals 1, 8 and col. 3, line 64 through col. 4, line 42. The collocated

antenna 1 is separated from the antenna 8, which is used for transmitting data to a destination.

Regarding claims 8 and 20, Applicant further contends that Hiramatsu does not teach "said portion having energy characteristics different from said desired RF transmission" because Hiramatsu teaches reception of similar signals, signal of a desired mobile station and a signal of the interference mobile station, on the same, antenna 1.

In response, as indicated in figure 2, Hiramatsu teaches receiving on an antenna 1 separate from the antenna 8 used for said RF transmission 7. Therefore, Blair as modified by Poyhonen does teach the claimed invention.

Regarding the rejection of dependent claim 10, Applicant further contends that Smith teaches "longer slots are then allocated to...contending against significant levels of noise and interference" in col. 5, lines 59-61, and that "Short slots are located...against low noise and interference...efficiently". Therefore, Smith teaches away from the claimed invention.

In response, one having skilled in the art would recognize that the technique used against interference by implement both short slots and long

slot is more powerful than the claimed invention, because it provides alternate slot length to cure the interference. Furthermore, the short slot time length of Smith does teach the claimed invention.

Regarding the rejection of dependent claim 13, Applicant contends that Lundby teaches simultaneously using of plurality of antennas, not the use of different antenna as required by claim 13.

In response, the claimed only requires using a different antenna for said desired transmission. The claim is so broad that it does not state the number of the antennas being used. There are no receiving antenna being claimed, rather just a different antenna for transmitting. Therefore, from this broad claimed limitation, the claim does not exclude using a plurality of antennas for transmitting, but broadly claimed using a different antenna for the desire transmission. Lundby does teach using a different antenna for transmitting the desire transmission. As a result, Lundby does meet the claimed limitation.

Considering the rejection of claim 14, Applicant argues that Chen does not teach “using a different hub for said desired RF transmission”.

In response, Chen does teach using a different hub or base station for the desired RF transmission as shown in col. 10, lines 15-56 in which

the increasing of reliability implies the inherency of interference in the RF communication.

Regarding the rejection of claim 17, Applicant contends that Lund fails to teach actively "changing polarity of said desired RF transmissions".

In response, does Chen apply the concept of changing polarity to minimize interference? This question is answered by Chen in col. 22, lines 17-24. Therefore, Chen does teach the claimed limitation.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEE NGUYEN whose telephone number is (703)-308-5249. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VIVIAN CHIN can be reached on (703) 308-6739.

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The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

LEE NGUYEN
Primary Examiner
Art Unit 2682

Lee Nguyen 6/4/03